City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	Kepron Deck
Proposal Address:	17232 SE 43rd St
Proposal Description:	Critical Areas Land Use Permit to modify a steep slope buffer to construct a 492 square-foot deck. The proposal includes 492 square feet of steep slope and steep slope buffer mitigation with native steep slope buffer planting. The proposal is supported by a Critical Areas Report.
File Number:	21-108599-LO
Applicant:	David Gilchrist, David Gilchrist Architect
Decisions Included:	Process II
Planner:	David Wong, Land Use Planner
State Environmental Policy Act Threshold Determination:	**Exempt**
Department Decision:	**Approval with Conditions**

Reilly Pittman, Acting Planning Manager

Elizabeth Stead, Land Use Director
Development Services Department

Application Date:	May 7, 2021
Notice of Application Publication Date:	June 3, 2021
Decision Publication Date:	October 21, 2021
Appeal Deadline:	November 4, 2021

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

CONTENTS

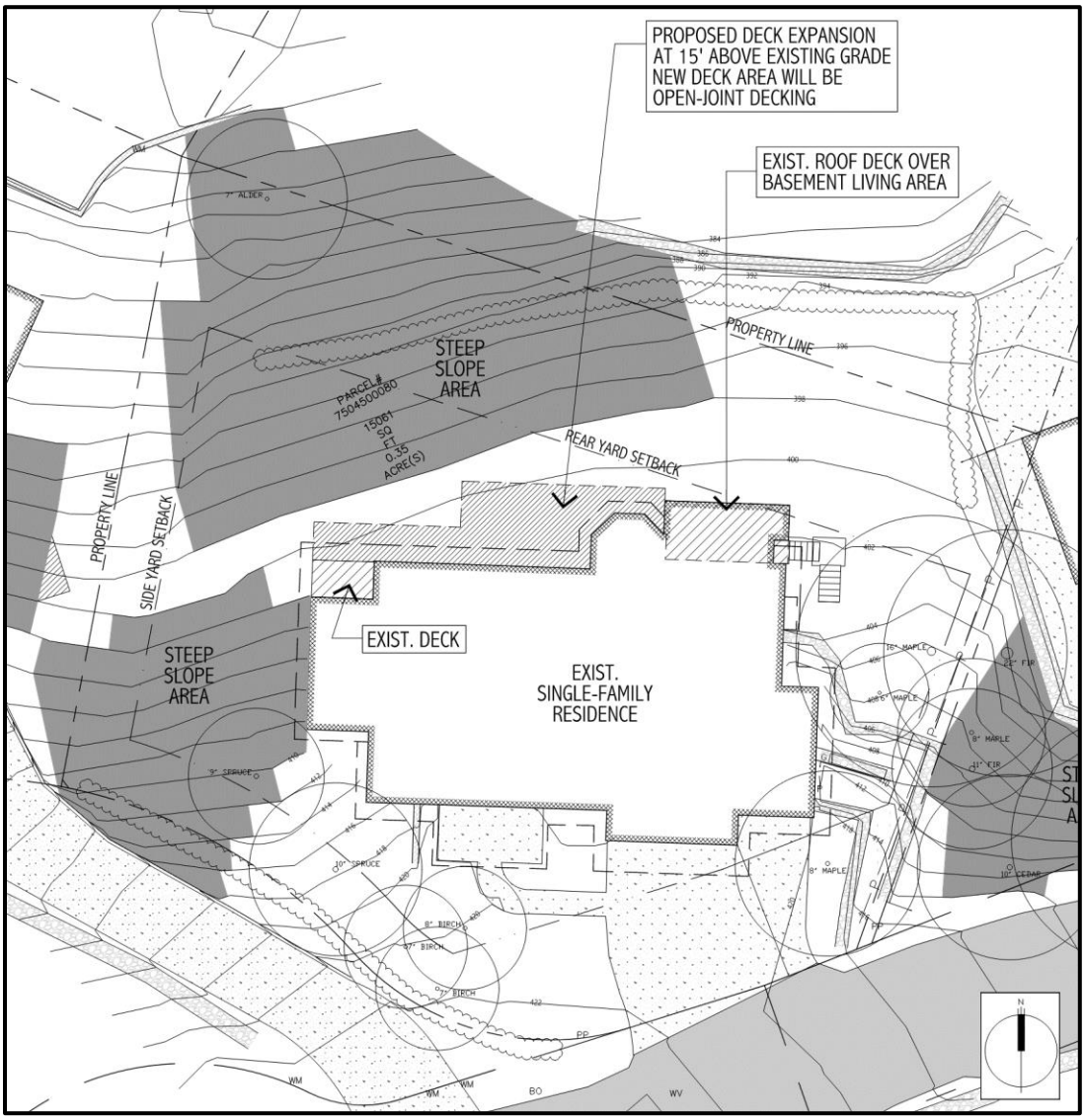
Attachments

1. Site Plan
2. Critical Areas Report – Altmann & Oliver
3. Geotechnical Report – Geotech Consultants, Inc.

I. Request & Review Process

The applicant has requested a Critical Areas Land Use Permit approval to construct a 492 square-foot deck on the north side of the existing single-family residence. The proposed deck would be located within a disturbed portion of the code required 50-foot steep slope critical area buffer. The proposal includes approximately 492 square feet of buffer mitigation planting and removal of impervious surface within the buffer to improve degraded buffer conditions. See Figure 1 for proposed site conditions.

Figure 1



Proposals to permanently modify a steep slope buffer require the approval of a Critical Areas Land Use Permit (CALUP) with Critical Areas Report (CAR) and are subject to the requirements of LUC 20.25H and 20.30P, including but not limited to those sections governing steep slopes, Critical Areas Reports (CAR), and mitigation.

II. Site Context & Description

A. Site Context

The existing site improvements include a single-family residence, driveway, and typical residential landscaping. The site has street frontage to the south along SE 43rd St and contains two (2) steep slope critical areas in the western and north portions of the property. The existing single-family home and improvements are located within the steep slope buffer. Large portions of the steep slope buffers contain degraded conditions typical of single-family residences (residential structure, impervious surface, landscaping, etc.). Areas of the steep slope and steep slope buffer are degraded with non-native vegetation, ornamental shrubs, and invasive species. Areas along the south and east sides of the existing single-family residence contains a mixture of semi-mature and mature hemlock (*Tsuga heterophylla*), Douglas-fir (*Pseudotsuga menziesii*), and big-leaf maple (*Acer macrophyllum*). The site soils have been identified as Alderwood gravelly sandy loam (AgD) according to mapping provided by the Natural Resources Conservation Service (NRCS). See Figure 2 below for the current site conditions**.**

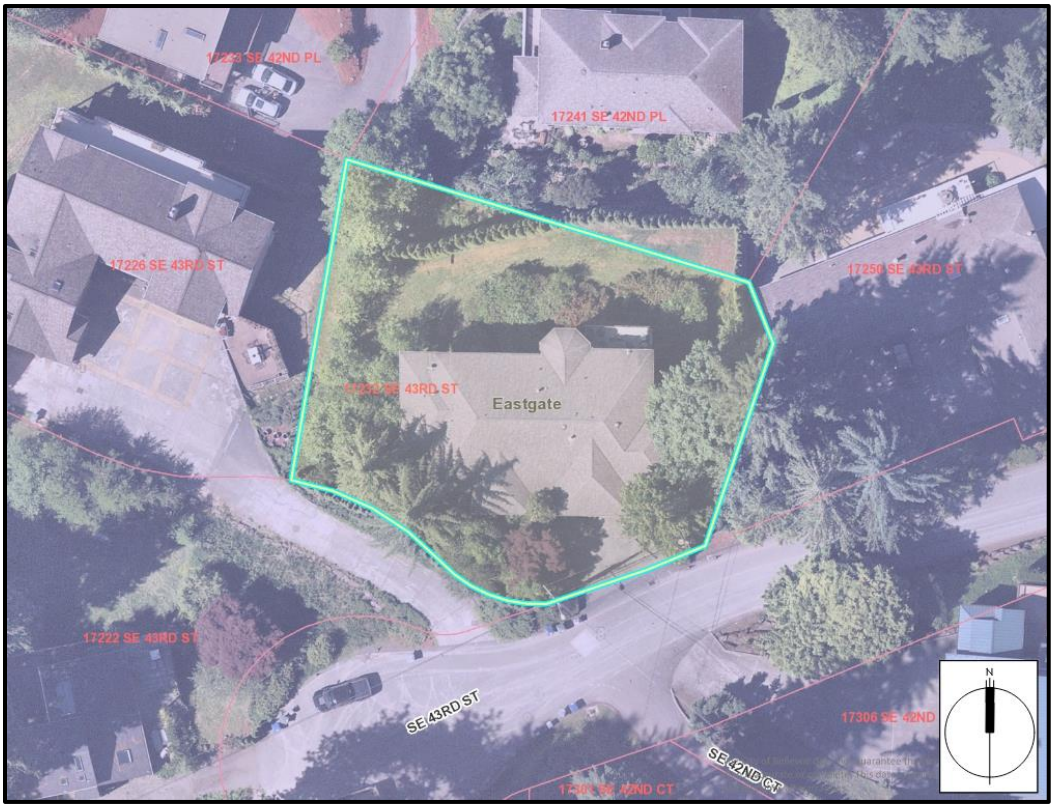
Figure 2

B. Zoning & Subarea

The property is zoned R-3.5 (Single-Family Residential) and is located within the Eastgate neighborhood area of the City's Comprehensive Plan. See Figure 3 for zoning map and Figure 4 for neighborhood area information.

Figure 3

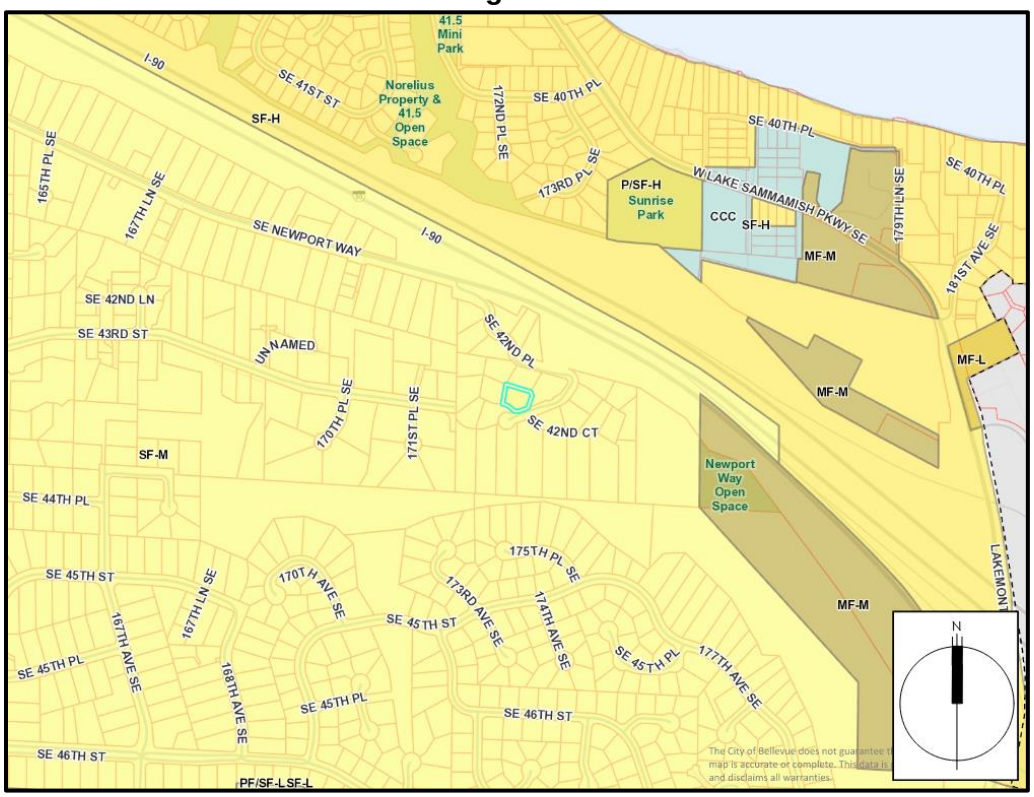
Figure 4



C. Land Use Context

The site has a Comprehensive Plan designation of SF-M, or Single-Family Medium Density. The site is adjacent to residential Comprehensive Plan designations on all sides. See Figure 6 for Comprehensive Plan designation.

Figure 5



D. Critical Areas Functions and Values

i. Geologic Hazard Areas

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

Steep slopes may serve several other functions and possess other values for the City and its residents. Several of Bellevue's remaining large blocks of forest are located in steep slope areas, providing habitat for a variety of wildlife species and important linkages between habitat areas in the City. These steep slope areas also act as conduits for groundwater, which drains from hillsides to provides a water source for the City's wetlands and stream systems. Vegetated steep slopes also provide a visual amenity in the City, providing a "green" backdrop for urbanized areas enhancing property values and buffering urban development.

III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

The site is located within the R-3.5 zoning district. Review of the proposal found that applicable dimensional requirements for rear yard setbacks, lot coverage, and impervious surface are in compliance with the standards and limitations of LUC 20.20.010. All zoning dimensional standards will be confirmed during review of the required building permit. See Section X for conditions of approval related to required Building Permit.

B. Consistency with Land Use Code Critical Areas Performance Standards:

i. Steep Slope & Geologic Hazards Performance Standards – 20.25H.125

In addition to generally applicable performance standards set forth in LUC 20.25H.055 and 20.25H.065, development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

1. **Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;**
   No changes to the natural contour of the steep slope or steep slope buffer are proposed. Deck improvements will occur in areas currently improved with residential landscaping.

2. **Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;**
   The proposed deck has been located outside of the steep slope and within areas where residential landscape improvements currently exist. The proposal includes removal of some non-native, invasive, and horticultural plant species within the steep slope and steep slope buffer, as well as mitigation planting within the northern steep slope with native species commonly found within steep slopes.

3. **The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;**
   Based on finding and recommendations made by the project Geotechnical Engineer, "*The proposed development will not result in greater risk or need for increased buffers on neighboring properties. This is due to the proposed deep foundations transmitting the structural loads from the proposed deck footings through loose fill and weather soil to suitable dense, glacially compressed soil below.*" (Attachment 3, pg.5). See Section X for conditions of approval related to geotechnical engineer recommendations.

4. **The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;**
   No new retaining walls or artificially graded slopes are proposed.

5. **Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;**
   The design incorporates the use of small footings for structural support and open-joint decking that will result in a minor increase in impervious surface coverage within the buffer. No impervious surfaces or further disturbance is proposed below the deck.

6. **Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;**
   No grading is proposed as part of this project.

7. **Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;**
   No new rockeries or freestanding retaining walls are proposed.

8. **On slopes in excess of 40 percent, use of pole-type construction which conforms to the existing topography is required where feasible. If pole-type construction is not technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification;**
   No development is proposed on or over slopes of 40 percent or greater.

9. **On slopes in excess of 40 percent, piled deck support structures are required where technically feasible for parking or garages over fill-based construction types; and**
   No new parking areas or garages are proposed.

10. **Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210. (Ord. 5680, 6-26-06, § 3)**
    The proposal includes mitigation plans to provide 492 square feet of new, native slope planting to off-set the proposed deck within the steep slope buffer. The species and densities provided in the conceptual mitigation planting plan generally conform to the requirement of the City's Critical Areas Handbook, and the applicant

will be required to provide a final mitigation planting plan under the Building Permit application. Conformance with the City's Critical Areas Handbook will be determined at the time of Building Permit review. See Section X for conditions of approval related to the mitigation plan.

C. Consistency with Critical Areas Report LUC 20.25.230.

The applicant supplied a complete critical areas report prepared by Altmann Oliver Associates, LLC and Geotech Consultants, Inc., both qualified professionals (Attachment 2 & 3). The report met the minimum requirements in LUC 20.25H.250.

IV. Public Notice and Comment

Application Date:	May 7, 2021
Public Notice (500 feet):	June 3, 2021
Minimum Comment Period:	June 17, 2021

The Notice of Application for this project was published in the City of Bellevue weekly permit bulletin on March 5, 2020. It was mailed to property owners within 500 feet of the project site. No comments have been received from the public as of the writing of this staff report.

V. Summary of Technical Reviews

Clearing and Grading:

The Clearing and Grading Division of the Development Services Department has reviewed the proposed development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development, however review under this permit does not constitute final Clearing & Grading approval. Clearing & Grading review is required to occur under any permit submitted to execute this scope of work, and final construction plans must be reviewed by the project geotechnical engineer prior to submittal. Due to the proximity of the on-site steep slope and the proposed work area, clearing and grading work is restricted during the rainy season or October 1st through April 30th. Geotechnical inspection is required during construction of the proposed improvements. See Section X for conditions of approval related to permit requirements, geotechnical review, rainy season restrictions, and geotechnical inspection conditions of approval.

Utilities:

City of Bellevue Utilities staff has reviewed the proposed development for compliance with City of Bellevue Utilities codes and standards. Utilities staff found no issues with the proposed development.

VI. State Environmental Policy Act (SEPA)

The proposal is exempt from SEPA review, per WAC 197-11-908 and BCC 22.02.032. Minor new construction within a steep slope buffer is exempt.

VII. Changes to Proposal as a Result of City Review

No changes were requested by City staff during the review of this proposal.

VIII. Decision Criteria

A. Critical Areas Report Decision Criteria-Proposals to Reduce Regulated Critical Area Buffer LUC 20.25H.255.

The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:

1. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions;

Finding: The proposal includes a mitigation plan that includes native planting within the steep slope to the northwest of the existing single-family residence. The CAR (Attachment 2) identifies and documents the degraded conditions on-site, both in the area of where the proposed deck is located and where the proposed mitigation planting will occur. With the installation of native vegetation, net improvement is expected, primarily through the improvements to the current habitat conditions, stormwater quality, and slope stability. See Section X for conditions of approval related to the mitigation plan.

2. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist;

Finding: Much of the slope buffer on-site is degraded due to the presence of permanent improvements (existing structure, driveway, lawn, etc.) and non-native vegetation. These areas have low levels of buffer functions identified and described in the CAR (Attachment 2). The mitigation planting plan was designed to improve degraded conditions within the steep slope through increased biodiversity of native plant species. See Section X for conditions of approval related to the mitigation plan.

3. The proposal includes a net gain in stormwater quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer;

Finding: The proposed native planting plan will result in improved stormwater functions of filtration and speed flow through the natural drainage path (slope and buffer). Overall stormwater quality is expected to be improved.

4. Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;

Finding: A five-year maintenance and monitoring plan has been included in the proposal. In addition to maintenance and monitoring activities, an assurance device associated with the maintenance and monitoring will be required as part of the Building Permit. See Section X for conditions of approval related to required maintenance and monitoring and assurance device.

5. The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and

Finding: The modifications and performance standards included in the proposal are not detrimental to off-site critical areas and buffers and are expected to lead to improved buffer function for on-site and off-site steep slope and wetland critical areas and buffers. The plan contains five years of measurable metrics addressing native plant specimen survival and establishment; native plant coverage; and invasive species coverage. As noted in the Critical Areas Report the existing low level of functions provided by this site would continue without the buffer reduction and mitigation planting plan. The slope functions will be enhanced with the proposed actions.

6. The resulting development is compatible with other uses and development in the same land use district. (Ord. 5680, 6-26-06, § 3)

Finding: The proposal does not change the underlying zoning or existing land use. The proposed deck is a normal improvement associated with a single-family residence.

B. Critical Areas Land Use Permit Decision Criteria 20.30P

The Director may approve or approve with modifications an application for a critical areas land use permit if:

1. The proposal obtains all other permits required by the Land Use Code;

Finding: The applicant will be required to apply for a Building Permit after the approval of the Critical Areas Land Use Permit. See Section X for conditions of approval related to Building Permit requirements.

2. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;

Finding: The proposal has been designed and located to minimize impacts to and improve critical area functions. The proposed deck is located within a buffer area of low buffer function due to existing degraded conditions caused by prior single-family development. Locating the development as proposed has the least impact on the steep slope and its buffer. The design includes mitigation planting of native species commonly found within steep slopes and those found in the near vicinity of the site.

The review of this permit is reliant upon the findings of qualified professionals submitted by the applicant as part of this proposal. The property owner will be required to execute a Hold Harmless Agreement releasing the City from liability for any improvements within the critical area and buffer. See Section X for conditions of approval related to the hold harmless agreement.

3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;

Finding: As discussed in Section III.B of this report, the proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable.

4. The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;

Finding: The site is currently served by adequate public facilities and no additional need is anticipated with this proposal. No change in public facilities service is anticipated.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

Finding: The proposal includes a preliminary mitigation plan that provides native planting consistent with LUC 20.25H.210. The plan also contains a five-year maintenance and monitoring plan to ensure successful establishment of installed planting. See Section X for conditions of approval related to maintenance and monitoring and mitigation.

6. The proposal complies with other applicable requirements of this code.

Finding: As discussed in Section III and V of this report, the proposal complies with all other applicable requirements of the Land Use Code.

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve with conditions** the proposal to construct a 492 square-foot deck at 17232 SE 43rd St as shown on the proposed plans (Attachment 1).

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a Building Permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Clearing and Grading Code - BCC 23.76	Savina Uzunow, 425-452-7860
Utilities Code - BCC 24	Jeremy Rosenlund, 425-452-4855
Land Use Code - BCC 20	David Wong, 425-452-4828

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

1. Building Permit Required: Approval of this Critical Areas Land Use Permit does not constitute an approval of a development permit. A Building Permit (with Clearing & Grading review) shall be required and approved. Plans consistent with those submitted as part of this permit application shall be included in the Building Permit application.

Authority: Land Use Code 20.30P.140
Reviewer: David Wong, Land Use

2. Mitigation Plan: A final mitigation plan in accordance with the conceptual mitigation plan provided under this application shall be submitted for review and approval by the City of Bellevue prior to issuance of the Building Permit. The plan shall document the total area of new critical area planting and the plans shall be consistent with the guidance provided in the City's Critical Areas Handbook.

Authority: Land Use Code 20.25H.105.C.3
Reviewer: David Wong, Land Use

3. Maintenance and Monitoring: A maintenance and monitoring plan in conformance with the plan submitted under this application shall be submitted for review and approval by the City of Bellevue prior to issuance of the Building Permit. The mitigation plan shall be maintained and monitored for a minimum of five (5) years. Annual reporting shall be submitted at the end of each growing season or by December 1 for each of the five years this plan is applicable. All reporting shall be submitted by email to **dwong@bellevuewa.gov**. or by mail to:

Environmental Planning Manager
Development Services Department
City of Bellevue
PO Box 90012
Bellevue, WA 98009-9012

Authority: Land Use Code 20.25H.220.D, 20.25H.220.H
Reviewer: David Wong, Land Use

4. Assurance Device: A financial surety is required to be submitted to ensure the mitigation planting successfully establishes. An assurance device that is equal to 100% of the cost of plants, materials, and installation is required to be held for a period of five (5) years from the date of building permit issuance. A cost estimate detailing the cost of the plant materials, installation materials (mulch, soil, etc.), labor for installation, five years of maintenance, and five years of monitoring is required to be provided with the building permit. The financial surety is required to be posted prior to building permit issuance. Release of the surety after the 5-year monitoring period is contingent upon a final inspection of the planting by Land Use Staff that finds the maintenance and monitoring plan was successful and the mitigation meets performance standards.

Authority: Land Use Code 20.25H.220.F
Reviewer: David Wong, Land Use

5. Geotechnical Review and Recommendations: Review and a written geotechnical memo shall be provided to the City by the project geotechnical engineer prior to Building Permit approval. The written memo shall verify the design is consistent with the recommendations made in the report dated October 8, 2020.

Authority: Land Use Code 20.25H.125; Clearing & Grading Code 23.76.050
Reviewers: David Wong, Land Use; Savina Uzunow, Clearing & Grading

6. Geotechnical Inspection: The project geotechnical engineer must provide geotechnical inspection during project construction, including retaining walls, subgrades for foundations and footings, and any unusual seepage, slope, or subgrade conditions.

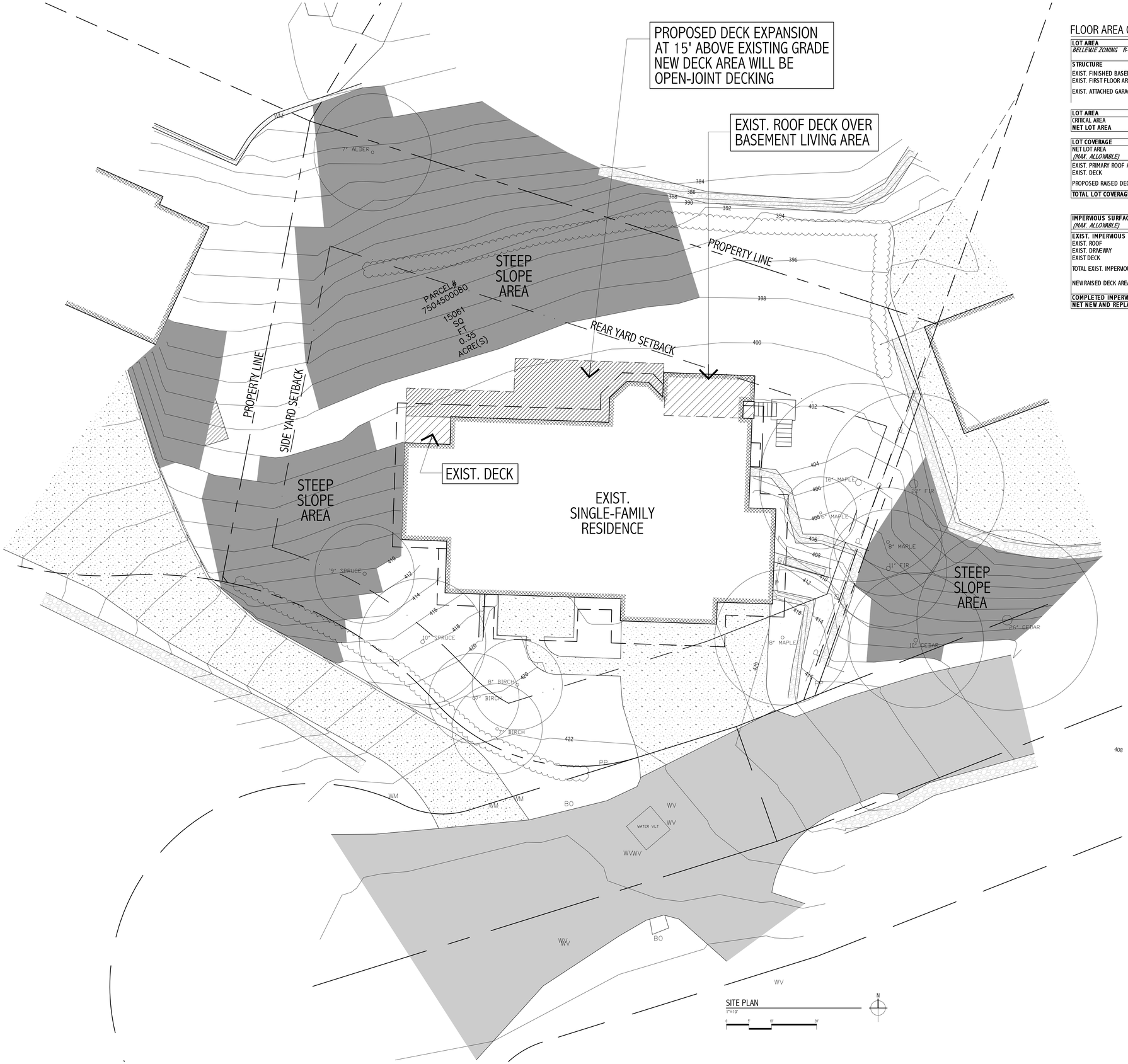
Authority: Clearing & Grading Code 23.76.050; 23.76.160
Reviewer: Savina Uzunow, Clearing & Grading

7. Hold Harmless Agreement: Prior to building permit approval, the applicant or property owner shall submit a hold harmless agreement releasing the City of Bellevue from any and all liability associated with the steep slope buffer modification. The agreement must meet city requirements and must be reviewed by the City Attorney's Office for formal approval.

Authority: Land Use Code 20.30P.170
Reviewer: David Wong, Land Use

8. Rainy Season Restrictions: Due to the proximity to a steep slope, no clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A,
Reviewer: Savina Uzunow, Clearing & Grading



FLOOR AREA CALCULATIONS

LOT AREA	15,061
BELLEVUE ZONING R-3.5	
STRUCTURE	
EXIST. FINISHED BASEMENT FLOOR AREA	1,640
EXIST. FIRST FLOOR AREA	4,120
EXIST. ATTACHED GARAGE	740

LOT AREA	15,061
CRITICAL AREA	4,362
NET LOT AREA	10,699

LOT COVERAGE		
NET LOT AREA	10,699	
(MAX. ALLOWABLE)	*5,271*	*35%*
EXIST. PRIMARY ROOF AREA	4,171	
EXIST. DECK	143	
PROPOSED RAISED DECK ADDITIONS	490	
TOTAL LOT COVERAGE	**4,804**	**= 32%**

IMPERMOUS SURFACE AREA		
(MAX. ALLOWABLE)	*6,777*	*45%*
EXIST. IMPERMOUS SURFACE		
EXIST. ROOF	4,171	
EXIST. DRIVEWAY	808	
EXIST DECK	143	
TOTAL EXIST. IMPERMOUS SURFACE AREA	5,122	= 34%
NEW RAISED DECK AREA	490	
COMPLETED IMPERMOUS SURFACE	**5,612**	**= 37%**
NET NEW AND REPLACED	**490**	

PROJECT INFORMATION

PROJECT ADDRESS:
17232 SE 43RD ST. BELLEVUE, WA 98006

PROJECT OWNER:
SCOTT AND MEREDITH KEPRON

TAX ASSESSOR'S PARCEL NO.:
750450-0080

LEGAL DESCRIPTION:
ST FRANCIS WOOD POR LOTS 7-8 LW WLY OF LN DAF BEG SW COR SD LOT 7 TH N 68-33-55 E 2.65 FT TH N 19-34-28 E 70.46 FT TH N 20-47-13 W 21.01 FT TO N LN SD LOT 8 & TERM SD LN PER KC SUBDIVISION EXEMPTION #L99M0014 DTD 5-8-99

PLAT LOT 7-8

PROJECT DESCRIPTION:
1. CONDITIONAL AREA LAND USE PERMIT IS REQUESTED FOR AN EXPANSION OF THE EXISTING RAISED DECK AREA AS SHOWN ON SITE PLAN.

PROJECT DIRECTORY

ARCHITECT:
DAVID GILCHRIST ARCHITECT, LLC
114 157TH AVE NE BELLEVUE, WA 98008
CONTACT: DAVID GILCHRIST 425-417-8492

GEOTECHNICAL ENGINEER:
GEOTECH CONSULTANTS, INC.
2401 10TH AVE E SEATTLE, WA 98102
CONTACT: MARC MCGINNIS 425-747-5618

STRUCTURAL ENGINEER:

SURVEY ENGINEER
TERRANE LAND SURVEYORS
101801 MAIN ST. SUITE 12 BELLEVUE, WA 98004
CONTACT: EDWIN GREEN 425-458-4488

ENVIRONMENTAL CONSULTANT
ALTMAN OLIVER ASSOCIATES
P.O. BOX 578 CARNATION, WA 98014
CONTACT: JOHN ALTMAN 425-941-4321

ZONING INFORMATION

BELLEVUE ZONING:	R-3.5
CONSTRUCTION TYPE:	V
OCCUPANCY:	R-3 (SINGLE FAMILY RESIDENCE)

TREE REMOVAL INFORMATION

1. NO SIGNIFICANT TREES ARE TO BE REMOVED.

CLEARING AND GRADING

1. NO CLEARING, GRADING OR EXCAVATION REQ'D FOR THE PROPOSED SCOPE OF WORK.
2. NO NEW FILL
3. EXISTING GRADE IS TO REMAIN UNCHANGED AT PROPERTY LINES AND AT BUILDING PERIMETER.

VICINITY MAP

DAVID GILCHRIST architect, LLC
114 157th Ave NE Bellevue, Washington 98008 425-417-8492

KEPRON REMODEL
17232 SE 43RD ST. BELLEVUE, WA 98006

9473 REGISTERED ARCHITECT DAVID M. GILCHRIST STATE OF WASHINGTON

DRAWING TITLE
PROJECT INFORMATION
SITE PLAN

ISSUE	DATE
CALUP	05.07.2021

JOB NO. 2011

1.0

Altmann Oliver Associates, LLC

PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509

AOA
Environmental
Planning &
Landscape
Architecture

February 1, 2021

AOA-6354

Scott Kepron
scottkep@amazon.com

SUBJECT: **Kepron Residence – Remodel and Deck Expansion**
Critical Areas Report - Habitat Assessment
17232 SE 43rd St, Parcel 750450-0080, Bellevue, WA
Steep Slope Buffer Modification and Vegetation Management Plan

Dear Scott:

On November 18, 2020 I conducted a habitat assessment on the subject property. Since the existing residence and proposed deck expansion are located within the buffer of a steep slope, a Critical Areas Land Use Permit (CALUP) is required.

1.0 INTRODUCTION

This report is the result of a habitat assessment on the proposed Kepron single-family residential deck expansion project site located in the City of Bellevue, Washington. The purpose of this report is to: 1) describe the critical areas identified on the site, 2) identify proposed modifications to the critical areas, and 3) describe the measures that will be implemented to mitigate and support these modifications.

2.0 PROPERTY DESCRIPTION AND LAND USE

The 11,050 s.f. project site consists of a single lot comprised of Parcel 750450-0080 located in Section 13, of Township 24 North, Range 05 East, W.M. The project site is currently entirely developed with a single-family residence and associated yard areas. The site slopes moderately to steeply down from south to north.

Vegetation on the property is almost entirely maintained yard with scattered native trees including Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and big-leaf maple (*Acer macrophyllum*). A small unmaintained area immediately to the west of the residence contained dense young red alder (*Alnus rubra*), with an understory of Himalayan blackberry (Rubus armeniacus), English ivy (*Hedera helix*), and small conifer saplings. Surrounding land use consists entirely of single-family residential.

No habitat features such as downed logs or snags were observed on or adjacent to the site.

3.0 EXISTING CRITICAL AREAS

No wetlands or streams have been identified on or adjacent to the site. Critical areas on the property are limited to steep slopes located to the north, west and east of the existing residence. The buffers from these steep slopes extend through the existing house.

4.0 WILDLIFE HABITAT ASSESSMENT

A habitat assessment was conducted on the property on November 18, 2020. Prior to conducting the field investigation, the Washington State Department of Fish and Wildlife's Priority Habitats and Species (PHS) database was reviewed. No priority habitats or species were identified on or immediately adjacent to the site as part of this mapping.

4.1 Wildlife Species of Local Importance

Twenty-three (23) species have been designated by the City of Bellevue as species of local importance (**LUC 20.25H.150**). The potential of site utilization by each species is briefly described below:

- Bald eagle (*Haliaeetus leucocephalus*): site not located within Bald Eagle Buffer Management Zone per PHS data. Some unlikely occasional perching opportunity within larger on-site trees possible but located within a developed residential area and does not have a primary association with habitat on or immediately adjacent site. Primary Association: no.

- Peregrine falcon (*Falco peregrinus*): generally associated with coastal cliffs and shorelines, but also use large buildings in city center. Use of project site unlikely. Primary Association: no.

- Common Loon (*Gavia immer*): no presence - highly aquatic species associated with large water bodies. Primary Association: no.

- Pileated woodpecker (*Dryocopus pileatus*): Pileated woodpeckers generally inhabit mature and old-growth forests, and second-growth forests with large snags and fallen trees. The range of the species encompasses all the forested areas of the state. Although typically found in larger forested tracts, they are known to occur in suburban habitats as well. Their key breeding habitat need is the presence of large snags or decaying live trees for nesting, as this species generally excavates a new nest cavity each year. The breeding and nesting periods of the pileated woodpecker extends from late March to early July. The lack of large snags and developed nature of the site limits the nesting and foraging potential of this species. Primary Association: no.

- Vaux's swift (*Chaetura vauxi*): Vaux's swifts are strongly associated with old growth and mature forests throughout the state and are highly dependent on large hollow trees and snags for breeding and roosting. Unlikely nesting or primary association on the site due to lack of mature forest and large snags. Primary Association: no.

- Merlin (*Falco columbarius*): unlikely presence – generally require coastal or high elevation forests. Primary Association: no.

- Purple martin (*Progne subis*): unlikely presence – generally require cavities near or over water for nesting. Primary Association: no.

- Western grebe (*Aechmophorus occidentalis*): no presence – highly aquatic species associated with large water bodies. Primary Association: no.

- Great blue heron (*Ardea herodias*): unlikely presence – typically forage in larger wetlands or pasture which do not occur on-site. No roosts observed on or adjacent site. Primary Association: no.

- Osprey (*Pandion haliaetus*): unlikely presence - perch availability not near large water body. Primary Association: no.

- Green heron (*Butorides striatus*): unlikely presence – not near large wetland or waterbody. Primary Association: no.

- Red-tailed hawk (*Buteo jamaicensis*): potential utilization of site for occasional perching, although no nests observed and not near significant open expanse. Primary Association: no.

- Western big-eared bat (*Plecotus townsendii*): potential presence, but no known nearby hibernacula or caves so not considered a habitat of primary association. Primary Association: no.

- Keen's myotis (*Myotis keenii*): potential presence, but generally associated with large coniferous forests so not considered a habitat of primary association. Primary Association: no.

- Long-legged myotis (*Myotis volans*): potential presence, but generally associated with large coniferous forests so not considered a habitat of primary association. Primary Association: no.

- Long-eared myotis (*Myotis evotis*): potential presence, but generally associated with large coniferous forests so not considered a habitat of primary association. Primary Association: no.

- Oregon spotted frog (*Rana pretiosa*): no presence - believed to be extirpated from nearly all of western Washington and no ponding on the site. Primary Association: no.

- Western toad (*Bufo boreas*): presence possible but no breeding potential and not considered habitat of primary association. Primary Association: no.

- Western pond turtle (*Clemmys marmorata*): no presence - no ponding on site and no known nearby populations. Primary Association: no.

- Chinook (*Oncorhynchus tshawytscha*): no presence – no streams on the site. Primary Association: no.

- Bull trout (*Salvelinus confluentus*): no presence – no streams on the site. Primary Association: no.

- Coho salmon (*Oncorhynchus kisutch*): no presence – no streams on the site. Primary Association: no.

- River lamprey (*Lampetra ayresi*): no presence – no streams on the site. Primary Association: no.

None of the 23 species of local importance appear to have a primary association with habitat on or immediately adjacent the project site.

4.2 Impacts to Wildlife Species of Local Importance from Proposed Project
The proposed project includes the expansion of an existing deck associated with the single-family residence. Since the existing deck is located entirely within the steep slope buffer it is not possible to avoid encroaching into the buffer with the expansion. The area of the deck expansion is currently maintained yard, and the project will not result in the removal of any significant native plant communities.

Since none of the species of local importance have a primary association with the project site, there are no anticipated impacts to these species from the proposed development.

5.0 PROPOSED SLOPE BUFFER MODIFICATIONS

It is my understanding that the proposed project has been designed to comply with all recommended geotechnical conditions and that no work is proposed on the steep slopes. As previously stated, since the existing deck is located entirely within the steep slope buffer, it is not possible to avoid encroaching into the buffer with the deck expansion.

5.1 Steep Slope Buffer Reduction
Any proposals to reduce a standard steep slope buffer must meet the decision criteria of **LUC 20.25H.255.B**

B. Decision Criteria – Proposals to Reduce Regulated Critical Area Buffer.

The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:

1. *The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions;*

   A habitat enhancement plan for a portion of the yard within the steep slope and steep slope buffer on the site has been prepared (**Figures 1 through 4**). Enhancement will occur through the removal of invasive plant species and re-planting yard with a variety of native plant species.

2. *The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist;*

   The existing steep slopes and steep slope buffers on the site currently provide low habitat functions since they consist primarily of existing maintained yard within a developed residential neighborhood. Although no habitat function would be lost as part of the project, an enhancement plan has been prepared to increase the plant species and structural diversity of a degraded yard area on the site.

3. *The proposal includes a net gain in stormwater quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer;*

   It is my understanding the project will incorporate any required City of Bellevue stormwater management measures. Since the enhancement plan will convert mowed yard into native vegetation, the enhancement area will provide increased filtration over current conditions.

4. *Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;*

   To ensure success of the enhancement, a performance bond for the enhancement area will be posted for the 5-year monitoring period. This bond will not be released until all the performance standards have been met.

5. *The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and*

   The performance standards for the project have been developed to increase the structural and plant species diversity of the enhancement area and will not be detrimental to the steep slope habitat functions on or off the site.

6. *The resulting development is compatible with other uses and development in the same land use district. (Ord. 5680, 6-26-06)*

The residential project is compatible with adjacent land uses and meets the zoning requirements for the land use district.

5.2 Decision Criteria per LUC 20.30P.140

The Director may approve or approve with modifications an application for a Critical Areas Land Use Permit if:

A. The proposal obtains all other permits required by the Land Use Code; and

It is our understanding that all other permits required by the Land Use Code will be obtained.

B. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer; and

The project will need to utilize all the best available construction, design, and development techniques to ensure the least possible impact on the critical area and its buffer.

All new plantings within the buffer will consist of native species and will be installed and maintained only by a qualified landscape contractor familiar with work in sensitive environments.

C. The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable; and

All the applicable performance standards in LUC 20.25H would be implemented to the maximum extent possible.

D. The proposal will be served by adequate public facilities including streets, fire protection, and utilities; and

It is our understanding that the proposal will be served by adequate public facilities including streets, fire protection, and utilities.

E. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210; except that a proposal to modify or remove vegetation pursuant to an approved Vegetation Management Plan under LUC 20.25H.055.C.3.i shall not require a mitigation or restoration plan; and

A critical area enhancement plan has been prepared that is consistent with the requirements of LUC 20.25H.

F. The proposal complies with other applicable requirements of this code.

It is our understanding that all other applicable requirements of the Land Use Code will be met.

6.0 FUNCTIONAL ASSESSMENT

Per LUC 20.25H.250.B.5, the City of Bellevue requires an *analysis of the level of protection of critical area functions and values provided by the regulations or standards of this code, compared with the level of protection provided by the proposal. The analysis shall include:*

a. *A discussion of the functions and values currently provided by the critical area and critical area buffer on the site and their relative importance to the ecosystem in which they exist*;

The steep slopes and the steep slope buffers on this site provide very limited habitat functions since they are comprised primarily of maintained yard. In addition, these critical areas are not specific habitat for any individual species of local importance. Currently the habitat on the site is likely only utilized by common wildlife species that are acclimated to suburban environments.

It is my understanding that the slope stability functions of the slope buffer have been assessed by the geotechnical engineer.

b. A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through application of the regulations and standards of this Code over the anticipated life of the proposed development; and

The existing residence and deck are currently located within the steep slope and steep slope buffer. Since there are no significant native plant communities on the site, enforcing the standard steep slope buffer will not provide any additional habitat protection. If the project did not occur, then there would be no implementation of a buffer enhancement plan.

c. A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through the modifications and performance standards included in the proposal over the anticipated life of the proposed development;

Enhancement of a yard areas within the steep slope on the site will increase the habitat value of the property by increasing the plant species and structural diversity within the enhancement area.

Without implementation of the proposed planting plan, the selected slope and slope buffer area would continue to function as a mowed yard area. Implementation of the maintenance and monitoring plan will reduce the extent of invasive species on the site and allow for the establishment of an increasingly diverse plant community.

7.0 SLOPE BUFFER MITIGATION

A habitat enhancement plan has been prepared by AOA. As part of the enhancement plan, invasive species would be removed, and the area planted with a variety of native species. The native plantings would increase the plant species and structural diversity of the site, thereby increasing the overall habitat value of the steep slope.

7.1 Goal, Objectives, and Performance Standards for Enhancement Area

The primary goal of the mitigation plan is to increase the habitat functions of the enhanced portion of the site over current conditions. To meet this goal, the following objectives and performance standards have been incorporated into the design of the plan:

Objective A: Increase the structural and plant species diversity within the enhancement area.
Performance Standard: There will be 100% survival of all woody planted species throughout the enhancement area at the end of the first year of planting. Following Year 1, success will be based on an 85% survival rate. Areal coverage of plantings or native re-colonized species will be at least 10% at Year 1, 20% at year 2, 30% at year 3, and 50% at year 5.

Objective B: Limit the amount of invasive and exotic species within the enhancement area.
Performance Standard: After construction and following every monitoring event for a period of at least five years, exotic and invasive plant species will be maintained at levels below 10% total cover in all planted areas.

7.2 Construction Management

Prior to commencement of any work in the enhancement area, the clearing limits will be staked and all existing vegetation to be saved will be clearly marked. A pre-construction meeting will be held at the site to review and discuss all aspects of the project with the landscape contractor and the owner.

A consultant will supervise plan implementation during construction to ensure that objectives and specifications of the enhancement plan are met. Any necessary significant modifications to the design that occur due to unforeseen site conditions will be jointly approved by the City of Bellevue and the consultant prior to their implementation.

7.3 Monitoring Methodology

The monitoring program will be conducted for a period of five years, with annual reports submitted to the City of Bellevue. Monitoring will include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, and invasive weeds.

Photo-points will be established from which photographs will be taken throughout the monitoring period. These photographs will document general appearance and progress in plant community establishment in the enhancement areas. Review of the photos over time will provide a visual representation of success of the plan.

7.4 Maintenance Plan
Maintenance will be conducted on a routine, year-round basis. Additional maintenance needs will be identified and addressed following a twice-yearly maintenance review. Contingency measures and remedial action on the site shall be implemented on an as-needed basis at the direction of the consultant or the owner.

Routine removal and control of non-native and other invasive plants should be performed by manual means whenever possible. Undesirable and weedy exotic plant species within the enhancement area shall be maintained at levels below 10% total cover within any given stratum at any time during the five-year monitoring period.

7.5 Contingency Plan
All dead plants will be replaced with the same species or an approved substitute species that meets the goal of the enhancement plan. Plant material shall meet the same specifications as originally installed material. Replanting will not occur until after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.). Replanting shall be completed under the direction of the consultant, City of Bellevue, or the owner.

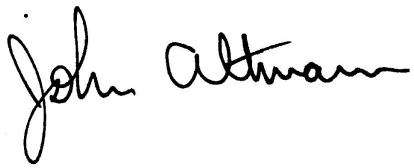
7.6 As-Built Plan
Following completion of construction activities, an as-built plan for the enhancement area will be provided to the City of Bellevue. The plan will identify and describe any changes in relation to the original approved plan.

7.7 Financial Guarantee
A financial guarantee will be posted to ensure that the mitigation and monitoring program is fully implemented.

If you have any questions, please give me a call.

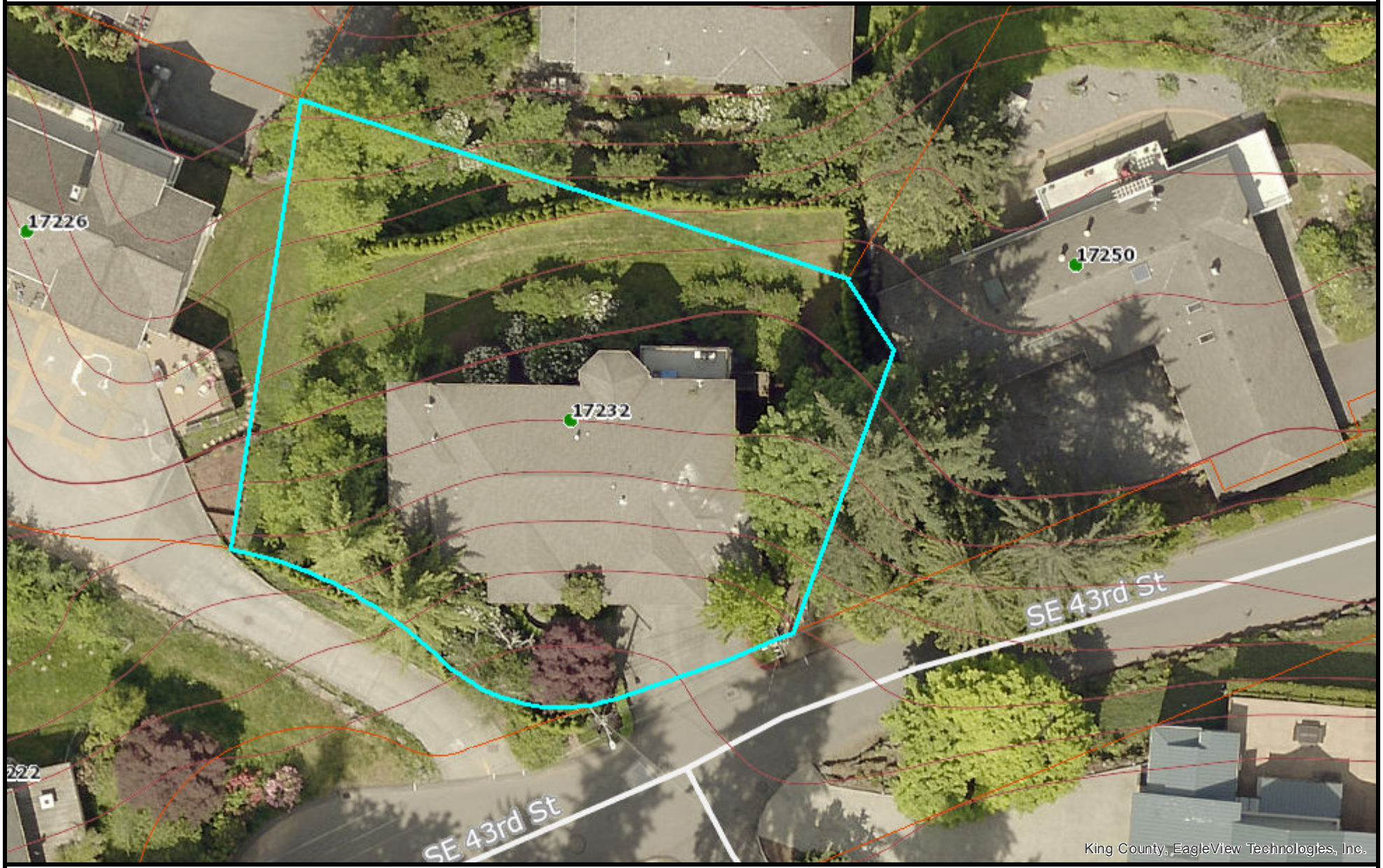
Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC



John Altmann
Ecologist

King County iMap



Date: 2/1/2021 Notes:

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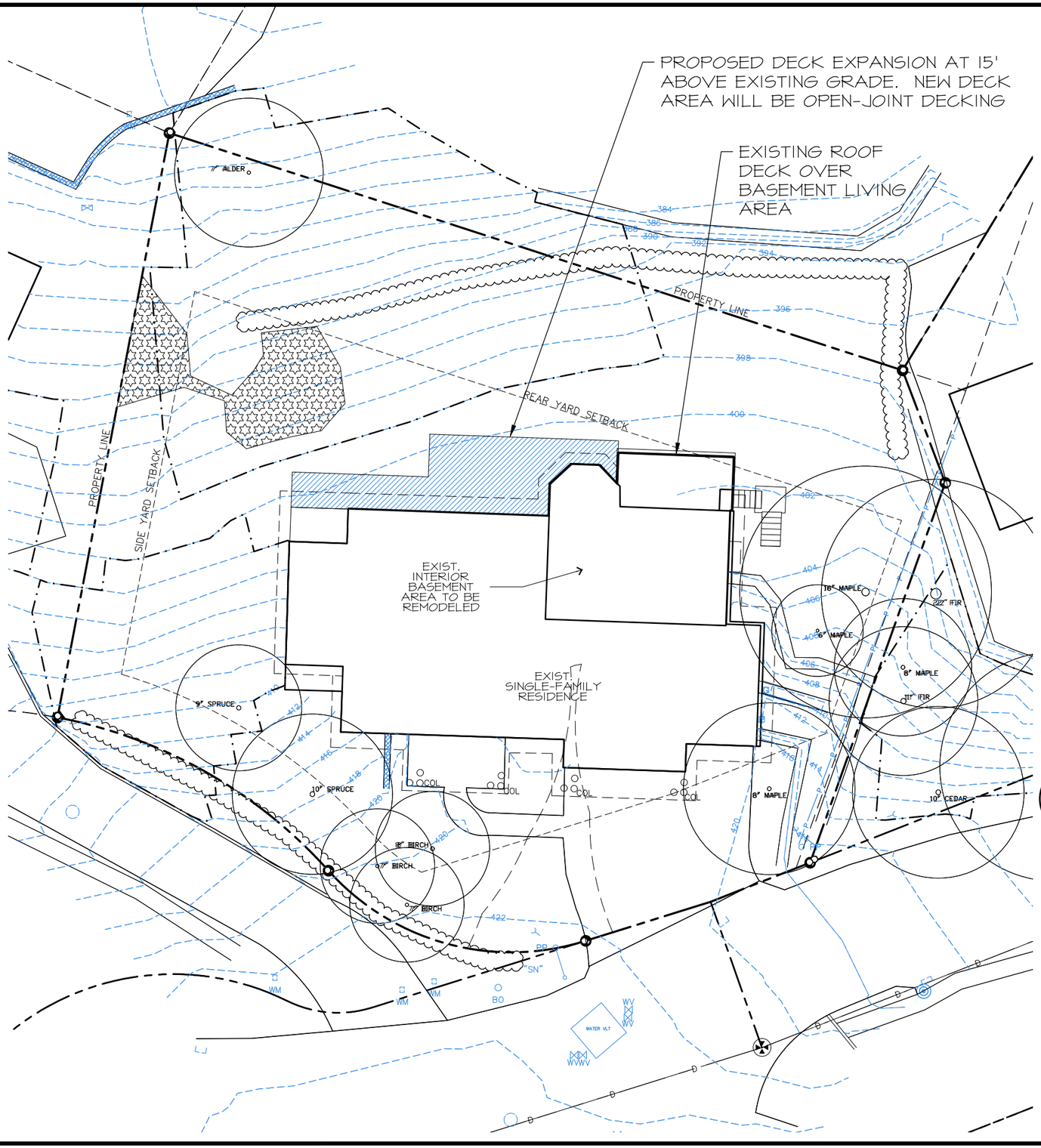
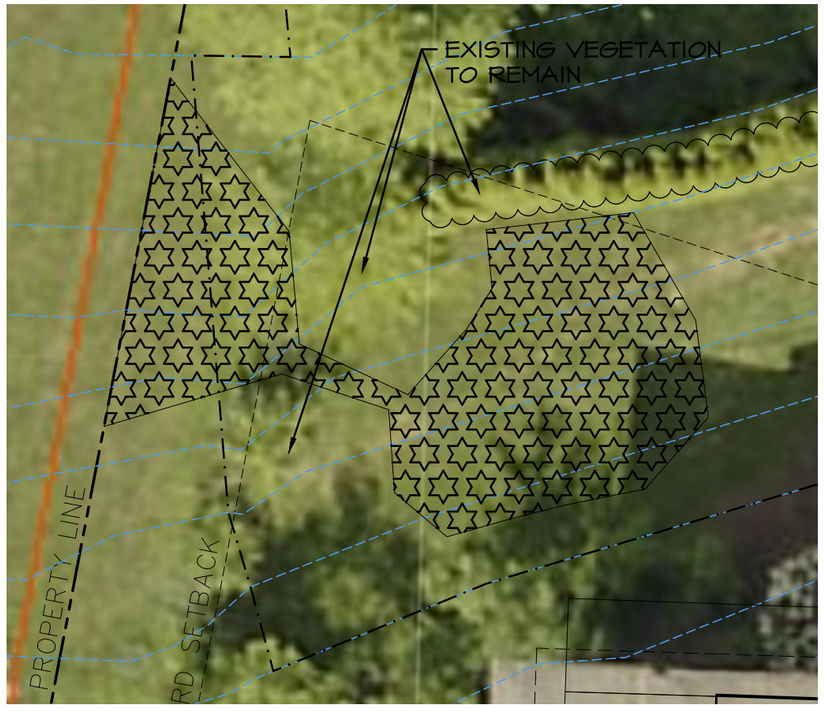
King County



PLAN LEGEND

	PROPERTY LINE	
	STEEP SLOPE	
	STEEP SLOPE BUFFER IMPACT FOR NEW DECK	492 SF
	STEEP SLOPE/STEEP SLOPE BUFFER MITIGATION	492 SF



1 MITIGATION ENLARGEMENT

SCALE: 1:10

GRAPHIC SCALE (IN FEET)

0 10 20 30 40 60

SCALE: 1:20

N

NOTES

1. BASE INFORMATION PROVIDED BY DAVID GILCHRIST ARCHITECT, LLC, 114 157TH AVE. NE, BELLEVUE, WA 98008, (425) 417-8492.

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FIGURE 1: STEEP SLOPE BUFFER IMPACT & MITIGATION PLAN
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BELLEVUE, WASHINGTON
PARCEL 750450-0080

Altmann Oliver Associates, LLC
AOA
Environmental Planning & Landscape Architecture
PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4369

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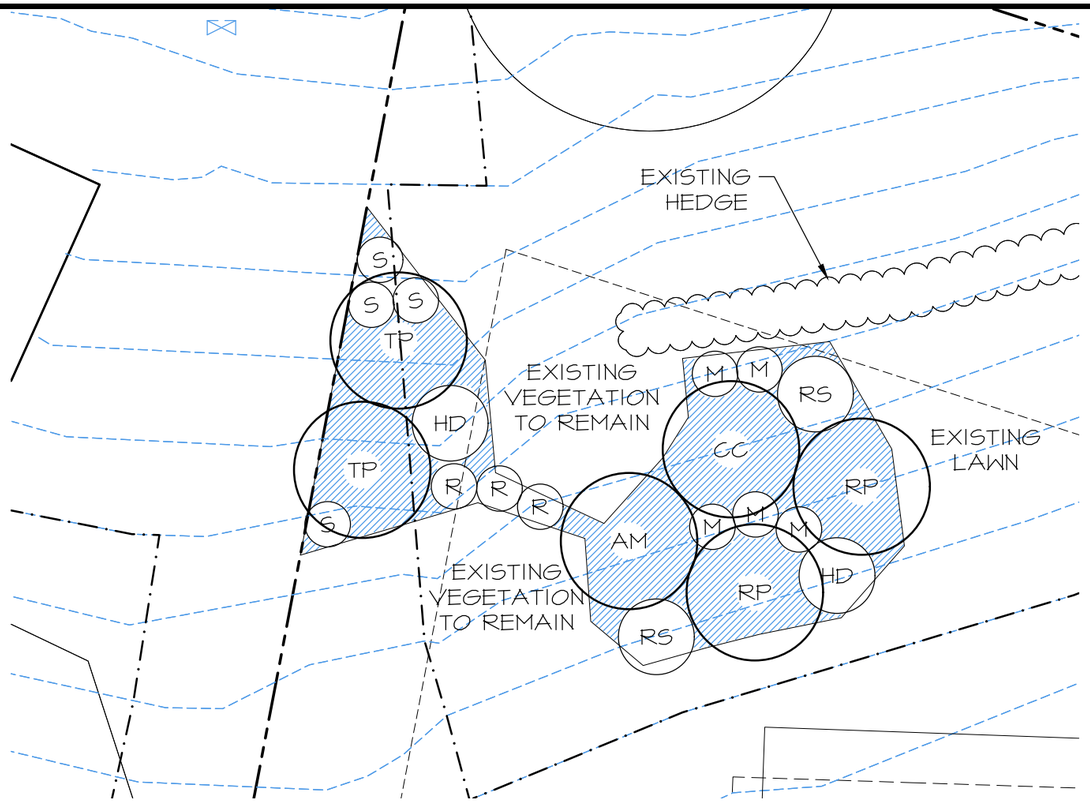

GRAPHIC SCALE
(IN FEET)

0 5 10 15 20 30

SCALE: 1:10

N

PLANT SCHEDULE

TREES

KEY	SCIENTIFIC NAME	COMMON NAME	DENSITY	QTY	SIZE (MIN.)	NOTES
AM	ACER MACROPHYLLUM	BIG LEAF MAPLE	9' O.C.	1	2 GAL.	SINGLE TRUNK
CC	CORYLUS CORNUTA	WESTERN HAZELNUT	9' O.C.	1	2 GAL.	MULTI-STEM (3 MIN.)
RP	RHAMNUS PURSIANA	CASCARA	9' O.C.	2	2 GAL.	SINGLE TRUNK
TP	THUJA PLICATA	WESTERN RED CEDAR	9' O.C.	2	2 GAL.	FULL & BUSHY

SHRUBS

KEY	SCIENTIFIC NAME	COMMON NAME	DENSITY	QTY	SIZE (MIN.)	NOTES
HD	HOLODISCUS DISCOLOR	OCEAN SPRAY	6' O.C.	2	1 GAL.	MULTI-CANE (3 MIN.)
M	MAHONIA AQUIFOLIUM	TALL OREGON-GRAPE	6' O.C.	5	1 GAL.	FULL & BUSHY
RS	RIBES SANGINEUM	RED CURRANT	6' O.C.	2	1 GAL.	MULTI-CAME (3 MIN.)
R	ROSA NUTKANA	NOOTKA ROSE	6' O.C.	3	1 GAL.	MULTI-CANE (3 MIN.)
S	SYMPHORICARPOS ALBUS	SNOWBERRY	6' O.C.	4	1 GAL.	MULTI-CANE (3 MIN.)

SHRUBS

KEY	SCIENTIFIC NAME	COMMON NAME	DENSITY	QTY	SIZE (MIN.)	NOTES
	GAULTHERIA SHALLON	SALAL	2' O.C.	83	1 GAL.	FULL & BUSHY

NOTES

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FIGURE 2: PLANTING PLAN
KEPRON PROPERTY
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PARCEL 7504500080

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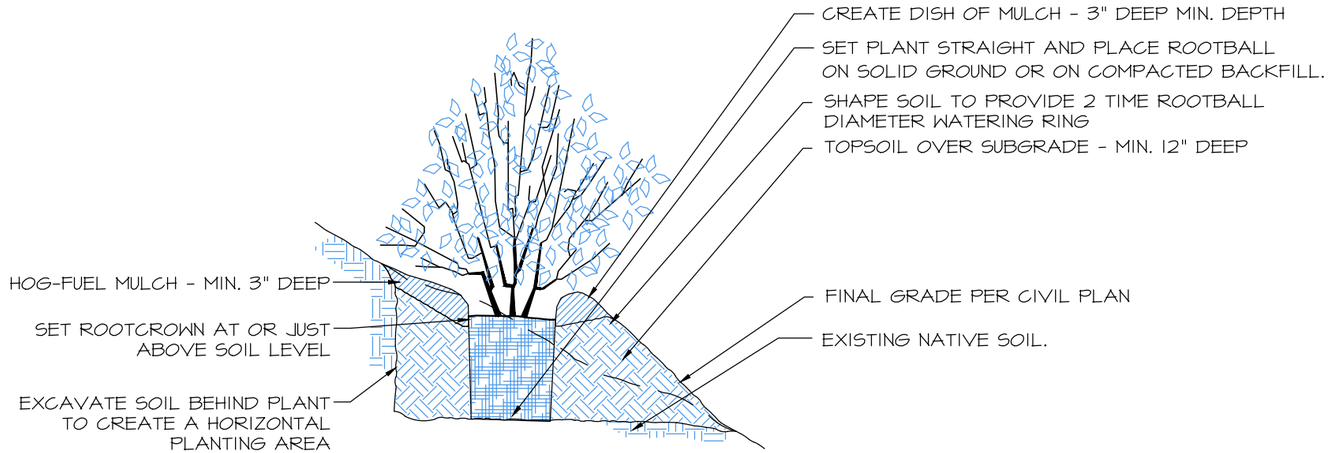
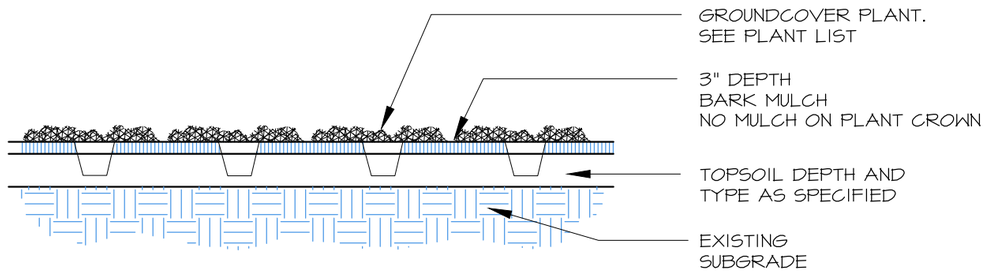
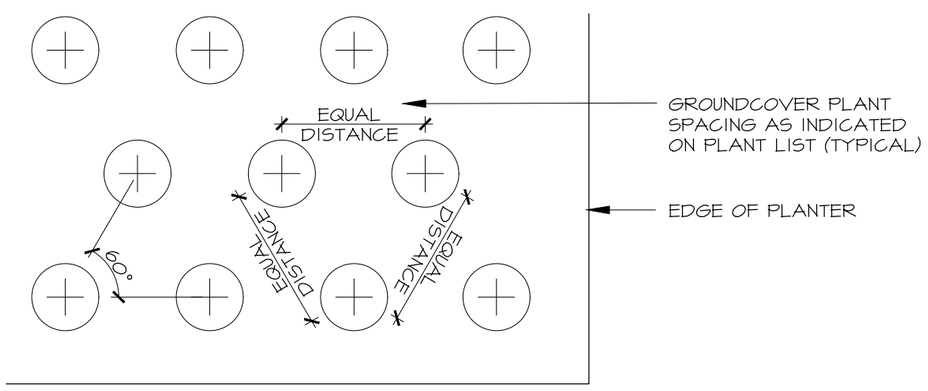


1 CONTAINER TREE/SHRUB PLANTING ON SLOPE

SCALE: NTS





2 GROUNDCOVER PLANTING

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FIGURE 3: PLANTING DETAILS
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SPECIFICATIONS

1. PRIOR TO PLANTING, ALL NON-ORGANIC DEBRIS AND NON-NATIVE VEGETATION SHALL BE REMOVED AND EXPORTED OFF SITE.
2. IMPORTED CEDAR GROVE 3-WAY TOPSOIL SHALL BE REPLACED IN THE MITIGATION AREA, AS NECESSARY, TO ACHIEVE PRE-DEVELOPMENT GRADES.
3. ALL PLANTS SHOULD BE INSTALLED BETWEEN DECEMBER 1ST AND APRIL 30TH UNLESS IRRIGATION IS IN PLACE AT TIME OF PLANTING.
4. ALL PLANTS SHALL BE PIT-PLANTED IN PLANTING PITS EXCAVATED 2X THE DIAMETER OF THE PLANT. PITS SHALL BE BACKFILLED WITH A 30/10 MIX OF DEJONG'S FERTIL-MULCH TO NATIVE SOIL. PLANTS SHALL BE INSTALLED 2" HIGH AND SURFACED MULCHED TO A DEPTH OF 3" WITH WOOD CHIPS PLACED CONTINUOUSLY THROUGHOUT THE PLANTING BED.
5. ALL PLANTS SHALL BE NURSERY GROWN (IN W. WA OR OR.) FOR AT LEAST 1 YEAR FROM PURCHASE DATE, FREE FROM DISEASE OR PESTS, WELL-ROOTED, BUT NOT ROOT-BOUND AND TRUE TO SPECIES.
6. PLANT LAYOUT SHALL BE APPROVED BY AOA PRIOR TO INSTALLATION AND APPROVED UPON COMPLETION OF PLANTING.
7. ALL PLANTINGS SHALL BE IRRIGATED WITH AN ABOVE-GROUND, TEMPORARY IRRIGATION SYSTEM AT A RATE OF ½" OF FLOW 2-3 TIMES WEEKLY, FROM JUNE 15-OCT 15 THE FIRST YEAR AFTER PLANTING. THE SECOND YEAR, FLOW SHOULD BE REDUCED TO PROVIDE ½" OF FLOW 1-2 TIMES WEEKLY FROM JULY 1-SEPT 30. THE SYSTEM CAN BE REMOVED AT THE END OF THE 3-YEAR MONITORING PERIOD.
8. UPON APPROVAL OF PLANTING INSTALLATION BY AOA, THE CITY OF BELLEVUE WILL BE NOTIFIED TO CONDUCT A SITE REVIEW FOR FINAL APPROVAL OF CONSTRUCTION.
9. PERFORMANCE STANDARDS INCLUDE: 1) FOLLOWING EVERY MONITORING EVENT FOR A PERIOD OF AT LEAST FIVE YEARS, THE OVERALL MITIGATION AREA WILL CONTAIN AT LEAST 7 NATIVE PLANT SPECIES. FOLLOWING YEAR 1, THERE WILL BE 100% SURVIVAL OR RECOLONIZATION OF NATIVE WOODY SPECIES. FOLLOWING YEARS 2-5, THERE WILL BE 85% SURVIVAL RATE OF ALL PLANTED TREE AND SHRUB SPECIES OR EQUIVALENT REPLACEMENT OF A COMBINATION OF PLANTED AND RE-COLONIZED NATIVE SPECIES. 2) AFTER CONSTRUCTION AND FOLLOWING EVERY MONITORING EVENT FOR A PERIOD OF AT LEAST FIVE YEARS, EXOTIC AND INVASIVE PLANT SPECIES WILL BE MAINTAINED AT LEVELS BELOW 10% TOTAL COVER IN ALL PLANTED AREAS. THESE SPECIES INCLUDE, BUT ARE NOT LIMITED TO; HIMALAYAN AND EVERGREEN BLACKBERRY, REED CANARYGRASS, PURPLE LOOSESTRIFE, MORNING GLORY, JAPANESE KNOTWEED, ENGLISH IVY, THISTLE, PERIWINKLE, SCOT'S BROOM, POISON HEMLOCK, LAUREL, STINKY BOB AND CREEPING NIGHTSHADE. 3) NATIVE WOODY COVERAGE WILL BE 10% AT YEAR 1, 20% AT YEAR 2, 30% AT YEAR 3, 40% AT YEAR 4 AND 50% AT YEAR 5.
10. MONITORING WILL OCCUR ON A TWICE YEARLY BASIS WITH REPORTS SUBMITTED TO THE CITY OF BELLEVUE AT THE ANNIVERSARY OF CONSTRUCTION APPROVAL. REPORT WILL INCLUDE A SUMMARY OF SUCCESS OF THE MITIGATION AREA IN RELATION TO THE APPROVED PERFORMANCE STANDARDS. REPORTS WILL ALSO INCLUDE PHOTOS TAKEN FROM VARIOUS POINTS AT CONSTRUCTION COMPLETION.
11. A PERFORMANCE BOND WILL BE POSTED, PRIOR TO PLAN APPROVAL - SEE KING COUNTY BOND WORKSHEET.
12. MAINTENANCE SHALL BE IMPLEMENTED ON A REGULAR BASES ACCORDING TO THE SCHEDULE BELOW.
13. UPON COMPLETION OF THE LAST MONITORING REPORT, IF PERFORMANCE STANDARDS ARE MET, AOA WILL PROVIDE A FINAL REPORT TO THE CITY OF BELLEVUE REQUESTING BOND RELEASE. UPON FINAL APPROVAL BY THE CITY OF BELLEVUE, THE BOND WILL BE RELEASED AND THE PROJECT WILL BE COMPLETE.

ANNUAL MAINTENANCE SCHEDULE

MAINTENANCE ITEM	J	F	M	A	M	J	J	A	S	O	N	D
WEED CONTROL			1		1		1			1		
GENERAL MAINT.			1		1		1			1		
WATERING - YEAR 1						4	8	8	8	4		
WATERING - YEAR 2							4	4	4			

1-8 = NUMBER OF TIMES TASK SHALL BE PERFORMED PER MONTH.

MAINTENANCE WILL INCLUDE:
1. REMOVAL OF NON-NATIVE PLANTS, BY HAND, AS LISTED ABOVE.
2. CONTINUED APPLICATION OF IRRIGATION, AS NOTED ABOVE.
3. REMOVAL OF PEST INFESTATIONS, LIKE TENT CATERPILLAR AND SPRUCE APHID, AS DETAILED BY AOA IN THE MONITORING REPORT.
4. REPLACEMENT OF PLANTS, AS DIRECTED BY AOA, IF MORTALITY EXCEEDS 20%.
5. THINNING OF RED ALDER AND MOWING OF TALL GRASSES, AS DIRECTED BY AOA TO ENSURE SURVIVAL OF PLANTED SPECIES.
6. ANY ADDITIONAL ITEMS IDENTIFIED BY AOA DURING THE FIVE-YEAR MONITORING PERIOD.

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FIGURE 4: SPECIFICATIONS
KEPRON PROPERTY
17232 SE 43RD STREET
BELLEVUE, WASHINGTON
PARCEL 750450-0080

Altmann Oliver Associates, LLC
AOA
Environmental Planning & Landscape Architecture
PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4609

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GEOTECH
CONSULTANTS, INC.

2401 10th Ave E
Seattle, Washington 98102
(425) 747-5618

October 8, 2020

JN 20249

Scott Kepron
17232 Southeast 43rd Street
Bellevue, Washington 98006
via email: scottkep@amazon.com

Subject: **Geotechnical Engineering Study**
Proposed New Deck
17232 Southeast 43rd Street
Bellevue, Washington

Dear Mr. Kepron:

We are pleased to present this geotechnical engineering report for the new deck to be constructed off the northwestern side of your existing home. The scope of our services consisted of assessing site surface and subsurface conditions, and then developing this report to provide design considerations for slope stability and foundations. This work was authorized by your acceptance of our proposal, P-10646, dated July 24, 2020.

Based on the Site Plan prepared by David Gilchrist Architect, dated June 23, 2020, we understand that a new deck is planned to extend off the northern wall of the existing residence, extending over the western two-thirds of the residence. The foundations carrying the northern side of the new deck will be located above an area of sloped backyard that was oversteepened from the natural condition by filling associated with the original site development and house construction. The southern edge of the deck will be supported on a ledger carried on the north wall of the existing house. No other new construction is proposed at this time.

If the scope of the project changes from what we have described above, we should be provided with revised plans in order to determine if modifications to the recommendations and conclusions of this report are warranted.

SITE CONDITIONS

The subject property is located on Southeast 43rd Street, just south of Interstate-90 and near the toe of Cougar Mountain. The irregular shaped site is bounded to the north, east, and west by single family properties, and to the south by Southeast 43rd Court and a private driveway. The lots to the north, east and west are developed with single family residences.

A small concrete driveway extends off Southeast 43rd Court to the existing residence, which consists of a main and lower floor that are underlain by a north-facing daylight basement. An attached garage is located at the north end of the driveway at the upper floor level, and the southeastern corner of the house. A small deck area extends off the northwestern corner of the house at the main-floor level, and a root deck underlain by basement living space extends off the northeastern corner of the residence.

The ground around the house and garage is covered with grass and landscaping. In general, the ground surface slopes downward from south to north. From the southern right-of-way the grade drops gently across the concrete driveway, before dropping moderately to steeply downward to the north along the east and west sides of the basement. The slope along the east side of the house is landscaped and contains three terraced rockeries that range in height from approximately 2 to 4 feet. The slope across the west side of the residence is steeply inclined, and is covered with ivy, underbrush and young trees. Along the northern, downslope foundation of the house the ground is gently sloped in the landscaped beds, but then becomes steeply sloped at an inclination of 40 to 45 percent in the rear yard. This slope is steeper than the surrounding natural topography and appears to have been created by filling using soil originally excavated for the house's construction. This slope continues past the northern property line, down into the neighboring northern property. A tall rockery is situated several feet north of the arborvitae hedgerow that roughly delineates the northern property line. We did not observe any signs of recent instability on the site slopes.

As previously mentioned, the site contains steep slope areas on the northern and western sides of the lot. The slopes to the north and west of the subject residence has been created by placing the resultant fill soil that was excavated from the residence footprint. Steep slope areas are also mapped on the properties to the east and west of the site. These adjacent eastern and western steep slope areas appear to have been created during past legal grading activities associated with cuts and fills for the construction of the residences and driveways. These steep slopes are inclined in excess of 40 percent over elevation changes of greater than 10 feet and would meet the City of Bellevue Criteria for a Critical Area.

While onsite, we were able to observe the current condition of the house foundations. It appears that the top of foundation depth ranges from as shallow as 12 inches beneath the ground surface along the northeastern corner of the low side of the house, to greater than 4 feet along the northwestern half of the house. Furthermore, a crack was observed in the approximate midpoint of the foundation along the northern wall of the foundation. No documentation regarding the original house construction was able to be provided at this time, but based on the cracking and foundation depths, the northern foundation may have been constructed atop looser soil.

SUBSURFACE

The subsurface conditions were explored by drilling two test borings at the approximate locations shown on the Site Exploration Plan, Plate 2. Our exploration program was based on the proposed construction, anticipated subsurface conditions and those encountered during exploration, and the scope of work outlined in our proposal.

The borings were drilled on August 7, 2020 using a portable Acker drill. This drill system utilizes a small, gasoline-powered engine to advance a hollow-stem auger to the sampling depth. Samples were taken at approximate 2.5 and 5-foot intervals with a standard penetration sampler. This split-spoon sampler, which has a 2-inch outside diameter, is driven into the soil with a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler a given distance is an indication of the soil density or consistency. A geotechnical engineer from our staff observed the drilling process, logged the test borings, and obtained representative samples of the soil encountered. The Test Boring Logs are attached as Plates 3 and 4.

Soil Conditions

Test Boring 1 was drilled near the northern extent of the proposed deck, and Test Boring 2 was drilled closer to the existing house near the eastern extent of the proposed deck. Beneath the ground surface, loose, disturbed, mixed fill soil generally consisting of silty sand with organics and wood was encountered. This fill layer was found to be 5 feet deep in Test Boring 2, and approximately 9.5 feet deep in Test Boring 1. These borings confirm that the steep slope north of the residence was created by filling associated with original development of the lot.

In Test Boring 1, the fill was underlain by native, loose silt. Native, medium-dense silty sand was encountered beneath the fill in Test Boring 2. Very dense, native, gravelly, silty sand was revealed beneath depths of 12.5 and 7.5 feet in Test Borings 1 and 2, respectively, and continued to the base of the test borings at depths of 8 to 14.25 feet where auger refusal was met. The very dense silty sand was observed to be glacially compressed and is commonly referred to as glacial till.

No obstructions were revealed by our explorations. However, debris, buried utilities, and old foundation and slab elements are commonly encountered on sites that have had previous development.

Although our explorations did not encounter cobbles or boulders, they are often found in soils that have been deposited by glaciers or fast-moving water.

Groundwater Conditions

No groundwater seepage was observed during drilling, which occurred at the end of summer. It should be noted that groundwater levels vary seasonally with rainfall and other factors. We anticipate that during wet weather, at least isolated groundwater could be found in more permeable soil layers, pockets within the till, and between the looser near-surface soil and the underlying glacial till.

The stratification lines on the logs represent the approximate boundaries between soil types at the exploration locations. The actual transition between soil types may be gradual, and subsurface conditions can vary between exploration locations. The logs provide specific subsurface information only at the locations tested. If a transition in soil type occurred between samples in the borings, the depth of the transition was interpreted. The relative densities and moisture descriptions indicated on the test boring logs are interpretive descriptions based on the conditions observed during drilling.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

THIS SECTION CONTAINS A SUMMARY OF OUR STUDY AND FINDINGS FOR THE PURPOSES OF A GENERAL OVERVIEW ONLY. MORE SPECIFIC RECOMMENDATIONS AND CONCLUSIONS ARE CONTAINED IN THE REMAINDER OF THIS REPORT. ANY PARTY RELYING ON THIS REPORT SHOULD READ THE ENTIRE DOCUMENT.

The site is underlain by dense to very dense, glacially compressed soils that are not prone to instability. However, from our test borings revealed uncompacted fill atop this competent soil within

the area of the proposed deck. New foundations for the deck, and any other settlement-sensitive elements, should not bear on the fill or loose soils, due to the likelihood for excessive post-construction settlement if footings were to be placed on the fill soils. Considering this, we recommend that the new deck be supported on small-diameter pipe piles that will be driven into the dense to very dense soils. This will prevent excessive settlement. A minimum of three piles should be installed at each pile cap location, and one supplemental horizontal helical anchor should be installed at each cap location to provide additional lateral support. Due to access restrictions, the pipe piles will likely have to be 2-inch in diameter and be installed with hand carried equipment.

The new construction will extend several feet closer to the northern manmade steep slope than does the existing house. The native, dense to very dense, glacially-compressed soils will be stable under static and design earthquake conditions. However, there is a potential for shallow movement on the steep slope in the future that could occur within the near-surface fill and loose soils. This would likely occur following extended wet weather, or an earthquake. The recommendations of this report are intended to: 1) prevent the new development from adversely impacting the stability of the steep slope, and 2) to protect the new construction from damage in the event of future shallow soil movement. We recommend that in addition to the pipe piles, which will provide vertical support for the new deck piers, a supplemental horizontal helical anchor be installed at each pile cap location. The addition of a helical anchor will help to provide lateral resistance to soil forces that could result if shallow slope movement occurs.

No fill or debris should be placed above the existing grade on the steep slope, or in the area between the existing wall and the northern line of the new construction. Excess soil from the expected limited excavations should be hauled off the site. The disturbance of the existing vegetation on the steep slope, should be limited to the minimum necessary to construct the new foundations. A wire-backed silt fence or a construction fence should be erected close to the perimeter of the work area as a visible reminder of the non-disturbance area. Runoff from the new construction must not be discharged toward, or onto, the steep slope. If the deck is pervious, as currently expected, then the existing runoff conditions will be unchanged. If an impervious deck is used, the collected runoff should be piped to a storm sewer, as the downspouts from the existing house are. The upper soils on the north portion of the site are fill, and the underlying native soils are impervious. Infiltration or dispersion of runoff on the northern portion of the property is infeasible, due to the impervious nature of the underlying soils, and the potential for adverse stability impacts on the site and the adjoining northern property.

The onsite manmade slopes meet the City of Bellevue's criteria for both a steep slope and a landslide hazard. The new construction will extend closer to this slope than the existing home. However, it will still be closer than the City's prescriptive 65-foot building setback (50-foot buffer and 15-foot foundation setback) contained in the municipal code. As a result, we expect that a Critical Area Land Use Permit (CALUP) will need to be obtained. In order to respond to specific geotechnical criteria in the Bellevue Municipal Code for a CALUP, we present the following discussion:

20.25H.125 Performance standards – Landslide hazards and steep slopes.

A. The existing grades to the north of the house have already been modified by filling when the house was originally constructed. The new construction for the deck will generally be at, or above, the existing grades. No significant modification of the existing grades is anticipated. The new construction will be supported on pipe piles, limiting the need for deep excavation to reach bearing soils. In general, the excavation will be limited to what is necessary to reach the bottom of pile caps for the new deck piers. Due to access restrictions, these limited excavations will likely occur using hand equipment, which will further limit disturbance to only the areas that need to be excavated. Footpaths will create disturbed

areas between material staging areas and the construction area, but will be revegetated as necessary following construction.

B. The new construction will extend closer to the northern steep slope than the existing house currently does, but will not extend onto the steep slope itself. Again, this area has already been disturbed by previous grading, but the new construction will not create significant disturbance, and will preserve the existing landforms and vegetation. The buffer above the manmade steep slope, and the slope itself, is generally covered with grass and landscaping, and a strip of this existing vegetation will remain above the steep slope for erosion protection. The deck will be elevated above the grade, and will only touch the ground at discrete foundation elements, minimizing ground disturbance.

   As part of the submitted plans and critical area report, a temporary erosion and sedimentation control (TESC) plan will likely need to be generated. This plan will clearly delineate the area of construction, as well as the means and methods used to reduce the erosion potential and potential for disturbance outside of the construction area. The area beneath the new deck will be landscaped to maintain appropriate permanent erosion control.

C. The proposed development will not result in greater risk or a need for increased buffers on neighboring properties. This is due to the proposed deep foundations transmitting the structural loads from the proposed deck footings through the loose fill and weathered soil to the suitable dense, glacially compressed soil below. Additionally, the proposed construction will not require significant grading or modification of the existing ground surface. The existing drainage will not be changed, as the deck will be pervious, which will maintain the current percolation of precipitation into the underlying soil.

D. Based on the provided plans at the time of writing this report, no significant slopes or retaining walls will be needed for the new construction.

E. The planned deck is planned to be of open-joint decking and will not create a significant impervious surface. If an impervious deck is utilized, and the runoff is collected and piped to the storm drain. This will incrementally improve the long-term stability of the slope.

F. There is no planned grading outside of minimal excavations for pipe pile installation and construction of pile caps. The existing topography will be maintained.

G. No new retaining walls are anticipated as part of the proposed development.

H. The new deck will be constructed in a pole-type construction fashion, limiting modifications to the existing site grades.

I. Parking or garages will not be constructed on slopes in excess of 40 percent or as part of the proposed development. Therefore, piled deck support structures do not need to be considered.

J. Outside of the footprint of the new construction, we expect that all areas of new permanent disturbance and all areas of temporary disturbance will be mitigated with erosion control plans as a part of the building permit.

Section 20.25H.140 Critical Areas Report – Additional Provisions for Landslide Hazards and Steep Slopes:

A. Not applicable. The site is not in a coal mine hazard.

B. 1. The final submitted critical area report will contain a site plan for the proposal as well as a topographic survey.

   2. This geotechnical report includes an assessment of the onsite soils as well as a review of the site history including publicly available information regarding previous geologic events and site grading. No information regarding these topics were found in our research, but conclusions regarding lot grading and fill placement were able to be made based on our time at the project site, as well as the subsurface conditions logged in our test borings. Please refer to the ***Surface, Subsurface***, and ***General*** sections of the report.

   3. The above discussions contain descriptions of the proposed project, which will include minimal disturbances to the site area within the prescriptive steep slope buffer, as well as its potential impact on the hazard area and surrounding properties. The new deck foundations will be supported on deep foundations consisting of small diameter pipe piles and helical anchors. The pipe piles will transmit the load from the deck through the loose fill soils, to the underlying dense, glacially compressed soils which

are not prone to instability. The helical anchors will be installed horizontally at each pile cap to provide lateral support to the pile caps. The helical anchors will be driven into the dense soils as well, which will aid to resist lateral, downslope movement in the event of shallow slope instability. The use of these two deep foundation systems in tandem will act to reduce the surcharge of the existing deck on the slope and will provide some protection to the deck footings in the event of shallow instability. In utilizing these deep foundation elements, the stability of the existing slope will not be adversely affected, and the proposed development will not increase the possibility for adversely impacting the adjacent lots.

4. The proposed deck expansion will encroach well within the City of Bellevue prescriptive steep slope buffers of 50 feet. The steep slope to the north of the development area was evidently created during previous legal grading associated with the construction of the existing residence, and the residence lies within the prescriptive steep slope buffer as well. The proposed new deck perimeter is shown to extend to within 3 feet of the steep slope area as shown on the preliminary site plan prepared by David Gilchrist Architect, LLC. Given the proposed pipe piles and helical anchors for support of the deck piers, it is our opinion that the limited disturbance and new foundations created by the new deck will have a negligible effect on the existing slope. Considering the minimal disturbance expected for the development, the use of deep foundations, it is our opinion that a minimum buffer and setback of zero feet from the steep slope is adequate to mitigate the landslide hazard and to prevent adverse impacts on the neighboring property.

Section 20.25H.145 Critical Areas Report – Approval of Modification:

A. The proposal will not increase the geological hazards to adjacent properties due to being supported on deep foundations that are embedded into the dense core of the site.
B. The proposed modifications to the onsite buffers will not adversely impact other critical areas due to the limited site disturbance for the new construction, and the use of deep foundations for structural support of the new deck.
C. The hazard to the project is mitigated to a level equal to or less than would exist if the proposed modifications to critical area buffers were not approved. The use of deep foundations will transmit the structural loading down through the loose fill to a dense soil strata. This will act to not impose a surcharge load to the loose fill soil on the slope and will not further adversely affect the critical area.
D. The proposed development protects life safety under the conditions that we anticipate. The deep foundations will help to protect the deck footings in the event of shallow slope movement, aiding in protecting the deck from catastrophic foundation collapse.
E. This geotechnical report is intended to satisfy this criteria for a geotechnical report demonstrating no adverse impacts on stability of surrounding slopes or structures.
F. From our understanding of the current development proposal, it will comply with best management practices.
G. We are not aware of any species of importance in the planned work area.

The erosion control measures needed during the site development will depend heavily on the weather conditions that are encountered. Existing vegetation and pavements should be maintained wherever possible. Any areas of bare soil around the excavations should be covered with straw, mulch, compost, plastic, or gravel. We anticipate that a silt fence will be needed around the downslope sides of any cleared areas. Trucks and equipment must not track soil or mud off the site. Following rough grading, it may be necessary to mulch or hydroseed bare areas that will not be immediately covered with landscaping or an impervious surface. As with any project, periodic maintenance or upgrading of erosion control measures may be necessary to address site conditions throughout construction.

We recommend including this report, in its entirety, in the project contract documents. This report should also be provided to any future property owners so they will be aware of our findings and recommendations.

SEISMIC CONSIDERATIONS

In accordance with the International Building Code (IBC), the site class within 100 feet of the ground surface is best represented by Site Class Type D (Stiff Soil). As noted in the USGS website, the mapped spectral acceleration value for a 0.2 second (S_s) and 1.0 second period (S_1) equals 1.34g and 0.51g, respectively.

The IBC and ASCE 7 require that the potential for liquefaction (soil strength loss) during an earthquake be evaluated for the peak ground acceleration of the Maximum Considered Earthquake (MCE), which has a probability of occurring once in 2,475 years (2 percent probability of occurring in a 50-year period). The dense soils beneath the site are not susceptible to seismic liquefaction under the ground motions of the MCE because of their dense nature. The loose soils closer to the ground surface are not susceptible to liquefaction, due to the lack of a defined groundwater table.

PIPE PILES

A 2-inch-diameter pipe pile driven with a minimum 90-pound jackhammer or a 140-pound Rhino hammer to a final penetration rate of 1-inch or less for one minute of continuous driving may be assigned an allowable compressive load of 3 tons. Extra-strong, Schedule 80 steel pipe should be used. The site soils are not highly organic and are not located near salt water. As a result, they do not have an elevated corrosion potential. Considering this, it is our opinion that standard "black" pipe can be used, and corrosion protection, such as galvanizing, is not necessary for the pipe piles. Subsequent pipe sections should be connected together using threaded or slip couplers, or by welding. If slip couplers are used, they must fit snugly into the ends of the pipes. This can require that shims or beads of welding flux be applied to the couplers.

Each isolated pile cap should include three piles: one driven vertically, and two piles driven at a 1:5 (Horizontal:Vertical) batter down toward the north.

The City of Bellevue has recently adopted Seattle Directors Rule 10-2009. Seattle Director's Rule 10-2009 contains several prescriptive requirements related to the use of pipe piles having a diameter of less than 10 inches. Under Director's Rule 10-2009, load tests are not required for 2-inch-diameter piles that are designed for a maximum allowable 3-ton capacity. Load tests and a code alternate or modification would be required if alternative installation methods are used, or if a higher capacity is desired. Additionally, full-time observation of the pile installation by the geotechnical engineer-of-record is required for projects within Bellevue.

HELICAL ANCHORS

As stated in the ***General*** section, a helical anchor should be installed at each pile cap location to provide lateral support in the event of a shallow slope failure. Helical anchors consist of single or multiple helixes that are rotated into the ground on the end of round or square metal shafts. These anchors can be used to support both compression and tension loads, but their lateral capacity is negligible due to the relatively small diameter of the metal shafts. The design capacity of single helix anchors is the allowable soil bearing capacity on the helix area. Multiple-helix anchors are typically assumed to have a design capacity equal to the sum of the allowable bearing capacity on each helix, if they are separated more than three helix diameters.

We recommend that the anchors have at least a single 10-inch-helix. The ultimate capacity of the anchor in tension or compression can be estimated roughly by multiplying the installation torque by 10. We recommend that the helix be installed at least 5 feet into dense soil. Each anchor should be installed at a 20- to 25-degree inclination from horizontal, and that they be should be torqued to at least to a torque of at least 1,000 ft-pounds, which will result in an allowable tensile anchor of at least 5,000 pounds.

The anchors should be installed by a specialty contractor familiar with design and installation of helical anchor systems. The contractor can assist with refining the anchor design and details and estimating, capacities for different soil and anchor conditions.

LIMITATIONS

The conclusions and recommendations contained in this report are based on site conditions as they existed at the time of our exploration and assume that the soil and groundwater conditions anticipated are representative of subsurface conditions on the site. If the subsurface conditions encountered during construction are significantly different from those expected, we should be advised at once so that we can review these conditions and reconsider our recommendations where necessary. Such unexpected conditions frequently require making additional expenditures to attain a properly constructed project. It is recommended that the owner consider providing a contingency fund to accommodate such potential extra costs and risks. This is a standard recommendation for all projects.

This report has been prepared for the exclusive use of Scott Kepron, and his representatives, for specific application to this project and site. Our conclusions and recommendations are professional opinions derived in accordance with current standards of practice within the scope of our services and within budget and time constraints. No warranty is expressed or implied. The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design. Our services also do not include assessing or minimizing the potential for biological hazards, such as mold, bacteria, mildew and fungi in either the existing or proposed site development.

ADDITIONAL SERVICES

Geotech Consultants, Inc. should be retained to provide geotechnical consultation, testing, and observation services during construction. This is to confirm that subsurface conditions are consistent with those indicated by our exploration, to evaluate whether earthwork and foundation construction activities comply with the general intent of the recommendations presented in this report, and to provide suggestions for design changes in the event subsurface conditions differ from those anticipated prior to the start of construction. However, our work would not include the supervision or direction of the actual work of the contractor and its employees or agents. Also, job and site safety, and dimensional measurements, will be the responsibility of the contractor.

During the construction phase, we will provide geotechnical observation and testing services when requested by you or your representatives. Please be aware that we can only document site work we actually observe. It is still the responsibility of your contractor or on-site construction team to verify that our recommendations are being followed, whether we are present at the site or not.

If you have any questions regarding this report, or if we may be of further service, please do not hesitate to contact us.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

10/08/2020

Marc R. McGinnis, P.E.
Principal

cc: **David Gilchrist Architect** – David Gilchrist
via email: david@dgilchristarchitect.com

NORTH

(Source: King County iMap)

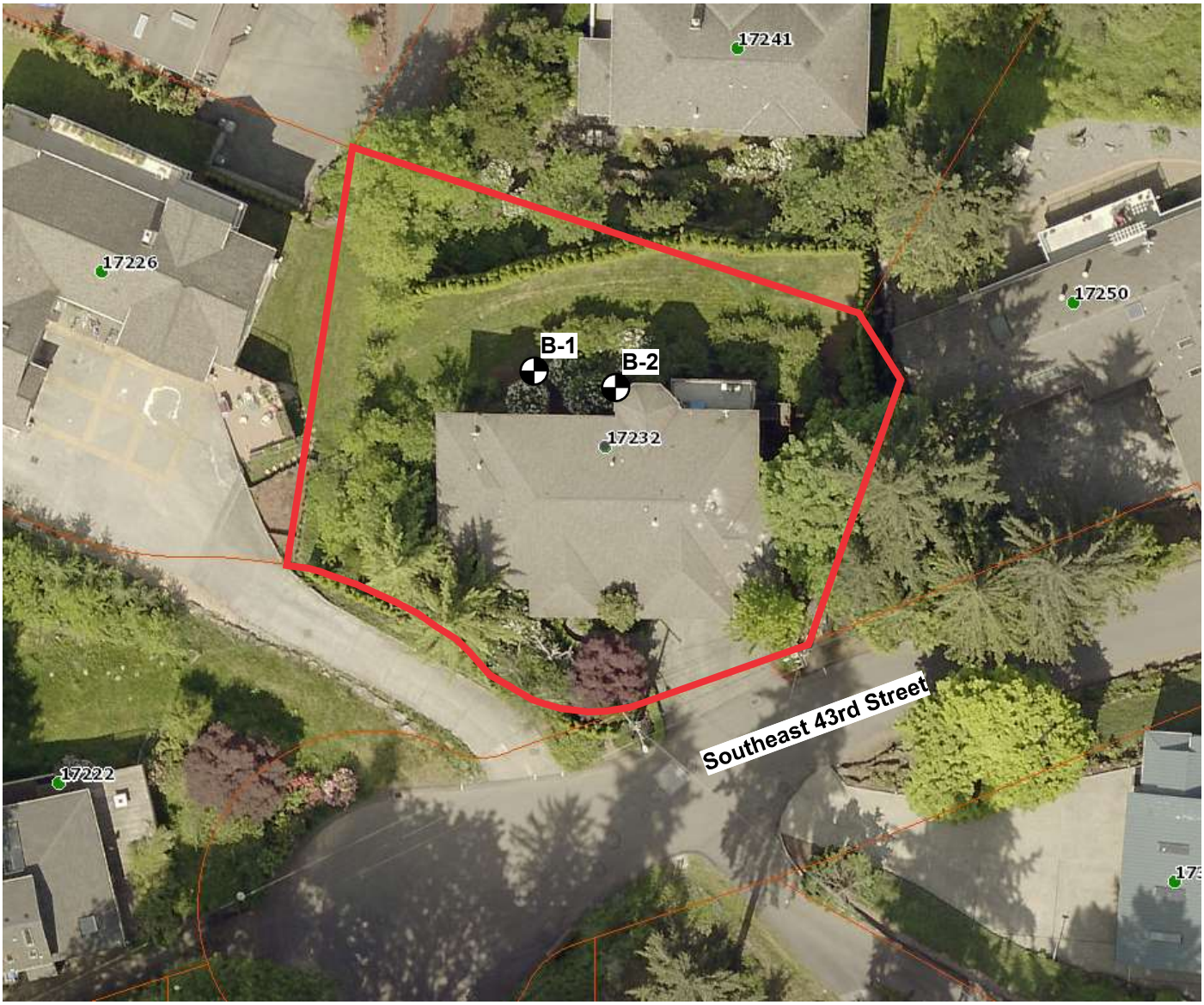
GEOTECH
CONSULTANTS, INC.

VICINITY MAP

17232 Southeast 43rd Street
Bellevue, Washington

Job No:	Date:		Plate:
20249	Aug. 2020		1

NORTH



Legend:

Test Boring Location

GEOTECH
CONSULTANTS, INC.

SITE EXPLORATION PLAN

17232 Southeast 43rd Street
Bellevue, Washington

Job No:	Date:		Plate:
20249	Aug. 2020	No Scale	2

BORING 1

Depth (ft.)	Moisture	Water Table	Blows per Foot	Sample	USCS	Description
						Topsoil Dark-brown mottled black, silty SAND with gravel and organics, fine-grained, moist, loose **(FILL)**
			3	1		-with pieces of wood, becomes very moist
5					FILL	
			4	2		-with abundant pieces of wood
			4	3		-becomes dark-brown, gray and black
10			5	4	ML	Gray-brown mottled orange, tan-brown, and dark-gray, SILT with gravelly, silty sand seams, fine-grained, low plasticity, very moist, loose
			81/11"	5	SM	Gray-brown heavily mottled, gravelly, silty SAND, fine-grained, moist, very dense **(Glacial Till)**
			50/2"	6		
15						

*** Test boring was terminated at 14.25 feet on August 7, 2020 due to auger refusal.**

*** No groundwater was encountered during drilling.**

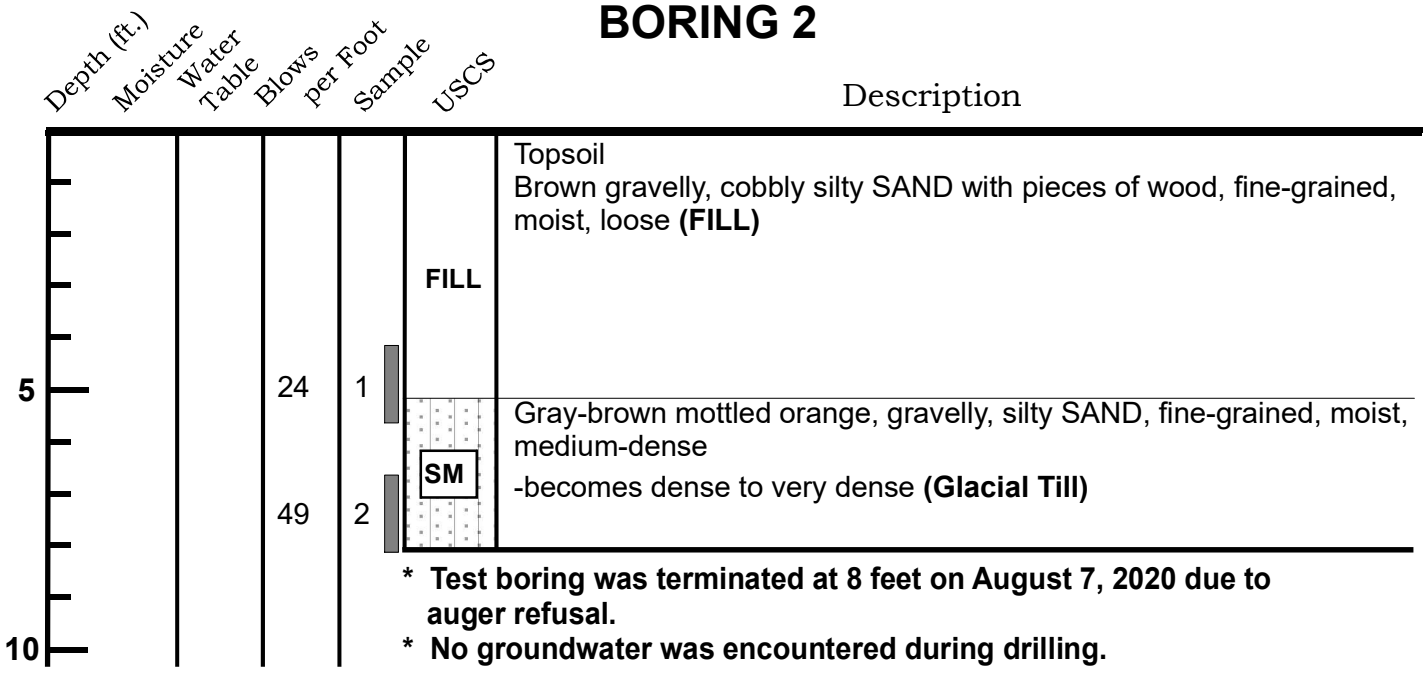
GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

17232 Southeast 43rd Street
Bellevue, Washington

Job	Date:	Logged by:	Plate:
20249	Aug. 2020	MKM	3

BORING 2



GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

17232 Southeast 43rd Street
Bellevue, Washington

Job	Date:	Logged by:	Plate:
20249	Aug. 2020	MKM	4